TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No.
ITL.0588US

In Re Application Of: **Michael J. Schaffer**

Serial No.	Filing Date	Examiner	Group Art Unit
10/046,596	October 22, 2001	Chuc Tran	2821

Invention: **Providing Integrated Chassis Antenna for Processor-Based Devices**

TO THE COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on **May 19, 2003**

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Dated: **July 18, 2003**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Michael J. Schaffer	§	Group Art Unit:	2821
Serial No.:	10/046,596	§	Examiner:	Chuc Tran
Filed:	October 22, 2001	§		
For:	Providing Integrated Chassis Antenna for Processor-Based Devices	§	Atty. Dkt. No.:	ITL.0588US (P11729)

Mail Stop Appeal Brief - Patents
Commissioner for Patents
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APPEAL BRIEF

Dear Sir:

Applicant hereby appeals from the Final Rejection dated March 3, 2003, finally rejecting claims 1, 2, 4, 7, 9, 12 and 14.

I. REAL PARTY IN INTEREST

The real party in interest is Intel Corporation, the assignee of the present application by virtue of the assignment recorded at Reel/Frame 012502/0218.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

Date of Deposit: 7-18-03
I hereby certify under 37 CFR 1.8(a) that this correspondence is being deposited with the United States Postal Service as **first class mail** with sufficient postage on the date indicated above and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
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III. STATUS OF THE CLAIMS

The application was originally filed with claims 1-24. Claims 1, 4, 7, 9, 12 and 14 were rejected pursuant to 35 U.S.C. § 102(e). Claim 2 was rejected pursuant to 35 U.S.C. § 103(a). Claims 3, 5, 6, 8, 10, 11, 13 and 15-24 have been objected to, but would be allowable if rewritten in independent form.

IV. STATUS OF AMENDMENTS

There are no unentered amendments.

V. SUMMARY OF THE INVENTION

In one embodiment, the antenna 103, shown in Figure 1, is integrated into the chassis by being formed out of the surface 105 of the chassis 101. The left 106, right 107, and top 109 of the antenna 103 may be released from the surface 105 while a bottom edge 111 may remain attached to the surface 105. The antenna 103 may be bent away from the surface 105 of the chassis 101 along the bottom edge 111. The vertical section 113 may then be bent upward from the base section 115 with one possible configuration being a vertical section 113 generally coplanar with the surface 105 of the chassis 101. Specification, pp. 3-4.

The resultant spacing of the vertical section 113 from the surface 105 may be sufficient to provide radio frequency isolation of the vertical section 113 and the chassis 101 at approximately the desired frequency band of operation of the antenna 103. In operation, a coaxial cable 211 (shown in Figure 2) may be connected between the feed point 117 of the antenna 103 and a wireless device such as a modem that may be contained within the computer chassis 101. Of

course in other embodiments, the antenna design may be modified such that the antenna 103 is rotated from a vertical orientation. For example, the antenna 103 may be rotated such that the vertical section 113 is at an angle that may be 45 degrees, to the base of the chassis. However, it is generally advantageous to have all antenna polarizations similar in a wireless network. Specification, p. 4.

Referring to Figure 2, in one embodiment, the antenna 103 may be coupled by a coaxial cable 211 to a wireless device 223, as one example, a wireless modem that may be located on a main board 225. In one example, the antenna 103 may be coupled to the wireless device by directly soldering the coaxial cable 211 conductors 213 and 227 to the wireless device 223. In another example, a circuit connector may be utilized to connect the coaxial cable to the wireless device 223. The center conductor 213 of the coaxial cable 211 is coupled to the feed point 117 of the antenna 103. Specification, pp. 4-5.

In one embodiment, the coaxial cable 211 shield conductor 227 may be coupled to a front edge 217 of the chassis 101 by a mechanical fastener 219. The mechanical fastener 219 may be any suitable device such as a screw or clip, as two examples, that may provide a sufficiently low impedance contact between the shield and the chassis front edge 217. Using a low impedance contact between the chassis 101 and coaxial shield 227 as the coaxial cable 211 exits the chassis 101 may reduce the unintended radiation of signals internal to the chassis 101 by the coaxial shield 227. Therefore the shielding effect of the chassis 101 may be retained. Specification, p. 5.

In some embodiments, the antenna 103 may be designed such that it is useful over approximately the particular frequencies utilized by the wireless device 223. Typical wireless computer networks may use either the radio frequency (RF) bands at 900 MHz or 2.4 GHz. Therefore the antenna 103 may be designed to be approximately resonant over at least one of those frequency bands in some embodiments. Specification, pp. 5-6.

In some embodiments, the wireless device 223 may provide the antenna 103 with an appropriate Radio Frequency ("RF") signal through the coaxial cable 211. RF signals from the wireless device 223 may flow through the coaxial cable 211 to the antenna 103 causing the antenna to radiate RF energy 221. Other wireless devices that may be part of a wireless network may receive this RF energy 221. Specification, p. 6.

Figure 3A-3C illustrate one example of manufacturing the antenna 103. In Figure 3A, the left 106, right 107 and top 109 of the antenna 103 may be released from the surface 105 of the chassis 101. This may be referred to as a "blanking" process where the antenna pattern is blanked out of the chassis into a "blank form". In Figure 3B, the antenna 103 may be bent away from the surface 105. In Figure 3C, the vertical section 113 of the antenna 103 may be bent generally coplanar with the surface 105 which may leave the bottom edge 111 attached to the surface 105. In some embodiments, the antenna 103 may be released and formed by a punch and die. In other embodiments, progressive dies may perform the forming. In still other embodiments, the antenna 103 may be formed by cutting and bending. Specification, pp. 6-7.

Figure 4A illustrates another method of manufacturing the antenna 103. In this example, perforations 402 may be formed along bend lines 401 and 403. The blank form 405 may then be bent to form the antenna 103. Specification, p. 7.

In another embodiment illustrated in Figure 4B, the metal blank 405 may have score lines 407 and 409 that may serve to form bend lines. The blank form 405 may then be bent to form the antenna 103. Specification, p. 7.

Figure 5 illustrates an additional embodiment where the antenna 103 may be formed with a coaxial cable center conductor retention feature 513. This retention feature 513 may be formed by making a slot 515 at the antenna 103 feed point 117. In operation, a coaxial cable 211 (shown in Figure 2) may connect the feed point 117 of the antenna 103 to a wireless device 223 that may be mounted within the computer chassis 101. The slot 515 may hold the center conductor 213 of the coaxial cable. In some embodiments, the center conductor may then be soldered to the antenna feed point 517 if desired. Specification, p. 7.

Figure 6 illustrates one of many possible embodiments of a wireless networking system 601. This system may include a plurality of computers 603, 605 and 607. In some embodiments, at least one of the computers 607 incorporates an integrated antenna 103. The antenna 103 enables a wireless device (shown in Figure 2) internal to the computer 607 to communicate with other devices that may be part of the network system 601. While this system 601 illustrates a network of computers, other wirelessly networked devices such as printers, network monitors, hubs, switches and the like may send data to, or receive data from the computer 607. Specification, pp. 7-8.

In many of the above described embodiments, a direct coupling may be made to the antenna feed point by a center conductor of a coaxial cable. However, many other methods of feeding RF energy to the antenna may also be used. As an additional example, a shunt feed system may be utilized that may not use a direct coupling between the antenna feed point and the center conductor of the coaxial cable. Specification, p. 8.

As used herein, "integrated" or "integrating" means to form or forming from material that forms a chassis and remaining contiguous, in part, with the chassis. Also, the above illustrated embodiments are just some of the many possible embodiments of the invention. For example, in other embodiments, the invention may be utilized for wireless network hubs or switches. In yet other embodiments, the invention may be utilized for wireless phones. Specification, p. 8.

VI. ISSUES

A. Does Crawford Teach or Suggest an Integrated Chassis Antenna That is Coupled to a Computer Chassis as Called For in Claim 1?

B. Does Crawford Teach Away From the Use of a Coaxial Cable?

C. Does Crawford Disclose an Antenna Integrated into a Chassis as Called for in Claim 4?

D. Does Crawford Disclose an Antenna Integrated into a Chassis and the Antenna Having a Feed Point as Called for in Claim 9?

E. Does Crawford Disclose Integrating an Antenna with a Chassis as Called for in Claim 14?

VII. GROUPING OF THE CLAIMS

Claims 1, 4, 7, 9, 12 and 14 were rejected under 35 U.S.C. § 102(e). On appeal, claim 1 forms a first group that is separately patentable with respect to any other group, hence does not

stand or fall with the remainder of the claims on this ground of rejection. Further, claims 4 and 7 form a second group that is separately patentable with respect to any other group, hence does not stand or fall within other claims subject to the same ground of rejection. Claims 9 and 12 form a third group that do not stand or fall with respect to any other group, hence are separately patentable. Claim 14 forms a fourth group that is separately patentable, hence does not stand or fall with respect to any other group rejected on this ground.

Claim 2 was rejected pursuant to 35 U.S.C. § 103(a). This is the only claim for this ground of rejection. As such, it stands alone, separately patentable from any other claims in the application.

VIII. ARGUMENT

All claims should be allowed over the cited references for the reasons set forth below.

A. Does Crawford Teach or Suggest an Integrated Chassis Antenna That is Coupled to a Computer Chassis as Called For in Claim 1?

Independent claim 1 was rejected under 35 U.S.C. § 102(e) as being anticipated by Crawford (U.S. Patent No. 6,456,242). Independent claim 1 calls for an integrated chassis antenna that is coupled to a computer chassis. Crawford does not teach an integrated chassis antenna within the meaning of integrated defined by the Applicant.

During patent examination, "the claims must be interpreted as broadly as their terms reasonably allow." *In re Zletz*, 13 U.S.P.Q. 2d 1320 (Fed. Cir. 1989). However, when an applicant states the meaning of a claim term, the claim is to be examined with that meaning. *Id.* *See also, Solomon v. Kimberly Clark Corp.*, 55 U.S.P.Q. 2d 1279 (Fed. Cir. 2000). Here, the

terms "integrated" and "integrating" have been defined as meaning "to form or forming from material that forms a chassis and remaining contiguous, in part, with the chassis." Specification, page 8, lines 18-20. Thus, to be integrated, the chassis antenna must be formed from material that forms the chassis and remain contiguous, in part, with the chassis.

To anticipate a claim, "a reference must disclose every element of the challenged claim and enable one skilled in the art to make the claimed subject matter." *PPG Inc. v. Guardian Indus. Corp.*, 37 U.S.P.Q. 2d 1618, 1624 (Fed. Cir. 1996). Further, the reference disclosure must be sufficiently clear to prove the existence of each and every element in the reference. *Motorola, Inc. v. Interdigital Tech. Corp.*, 43 U.S.P.Q. 2d 1481, 1490 (Fed. Cir. 1997). The Examiner specifically references antenna elements 230 and 238 of Crawford as being integrated chassis antennas. See Paper 9, page 2 and page 4. However, the antenna elements 230 and 238 are not integrated within the meaning defined by the Applicant. For example, antenna elements 230 and 238 are patch or printed microstrip antennas that are mounted on or attached to a housing 202. Column 2, lines 6-12; Column 5, lines 1-6 and 20-43. Additionally, see e.g., claims 1, 9, 11, 19 and 21. Thus, Crawford does not describe the antenna elements cited by the Examiner as being formed from the material that forms the housing 202. Rather, Crawford describes them as being attached or mounted thereon. Accordingly, the Crawford reference fails to disclose every element of claim 1 much less do so in a manner that is sufficiently clear to prove the existence of the integrated chassis antenna. Without clear proof of every element, the Crawford reference cannot anticipate claim 1. For at least these reasons, the rejection of claim 1 should be reversed.

B. Does Crawford Teach Away from the Use of a Coaxial Cable?

Claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Crawford. Claim 2 calls for a chassis including a front surface and a first wireless network device is coupled to an integrated chassis antenna by a coaxial cable and a shield conductor of the coaxial cable is coupled to the front surface of the computer chassis. If the prior art references do not identify each part of the claim, the claim is patentable. *See, e.g., In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000); 55 U.S.P.Q. 2d (BNA) 1313. Crawford clearly does not identify an integrated chassis antenna coupled to a network device by a coaxial cable or the shield conductor of the coaxial cable being coupled to the front surface of the computer chassis.

The Examiner states,

> Crawford disclose[s] a conformational box antenna comprising the chassis (202) includes front surface and the first wireless network device (260) is coupled to the integrated chassis antenna (238) by a coaxial cable (Fig. 3) (Col. 6, Line 37).

Paper No. 9, pages 3-4. This is incorrect. For example, Crawford discloses"[l]ocating the active circuitry 250 on the backside of the antenna assembly 200 has the advantage of allowing the active circuitry 250 to interface directly with the antenna elements... 238..., which simplifies signal routing and eliminates the need for coaxial antenna connections." Column 6, lines 33-38 (emphasis added). Thus, Crawford is not silent with respect to coaxial cable and even teaches away from modifying his invention to incorporate it therein. See, Paper No. 9, pages 3-4.

Making the modification suggested by the Examiner would change the principal of operation of Crawford and/or Crawford teaches away from this modification. If the proposed

modification of the prior art changes the principal of operation of the invention being modified, then the claims are not *prima facie* obvious. *In re Ratti*, 123 U.S.P.Q. 349 (CCPA 1959); *The Proposed Modification Cannot Change The Principal of Operation of a Reference,* M.P.E.P. § 2143.01. For example, coupling a coaxial shield conductor to the front surface of the housing would require a substantial redesign of Crawford to a design that he expressly avoids. Accordingly, the Examiner has not established a *prima facie* case of obviousness and the rejection of claim 2 should be reversed.

C. Does Crawford Disclose an Antenna Integrated into a Chassis as Called for in Claim 4?

Independent claim 4 was rejected under 35 U.S.C. 102 (e) as being anticipated by Crawford (U.S. Patent No. 6,456,242). Claim 4 calls for an antenna integrated into a chassis. Crawford fails to disclose an antenna integrated into a chassis.

Pursuant to the Applicant's specification, to be integrated, the antenna must be formed from material that forms the chassis and remain contiguous, in part, with the chassis. *See, Solomon v. Kimberly Clark Corp.*, 55 U.S.P.Q. 2d 1279 (Fed. Cir. 2000)(when an applicant states the meaning of a claim term, the claim is to be examined with that meaning); *In re Zletz*, 13 U.S.P.Q. 2d 1320 (Fed. Cir. 1989). Crawford makes clear that his antenna is not integrated within the meaning defined by the Applicant.

For example, the antenna elements 230 and 238, which were cited by the Examiner, are mounted on or attached to a housing 202. Column 2, lines 6-12; Column 5, lines 1-6 and 20-43. Additionally, see e.g., claims 1, 9, 11, 19 and 21. Specifically, the outer surface of the housing

202 may include metal patterns that define the structure of the antenna elements 230 and 238. Column 5, lines 34-36. However, Crawford does not disclose the metal patterns as being the material that forms the chassis. Rather, in light of his clear statements that the antenna elements 230 and 238 are attached to or mounted on the chassis one could conclude that the metal patterns are mounted on the outer surface of the housing. In any event, there is no clear disclosure that the antenna elements 230 and 238 are anything other than antenna elements mounted on the exterior surface of the chassis 202. Column 5, lines 15-19. As such, the antenna elements 230 and 238 are not integrated into the chassis. See *e.g., Motorola, Inc. v. Interdigital Tech. Corp.*, 43 U.S.P.Q. 2d 1481, 1490 (Fed. Cir. 1997). (The reference disclosure must be sufficiently clear to prove the existence of each and every element in the reference.)

Without the clear existence of an antenna integrated into the chassis within the meaning of the claim, Crawford does not anticipate Claim 4. Hence, the rejection of claims 4 and 7 should be reversed.

D. Does Crawford Disclose an Antenna Integrated into a Chassis and the Antenna Having a Feed Point as Called for in Claim 9?

Independent claim 9 was rejected under 35 U.S.C. § 102 (e) as being anticipated by Crawford (U.S. Patent No. 6,456,242). Claim 9 calls for an antenna integrated into a chassis and the antenna having a feed point. Crawford does not teach an antenna integrated into a chassis within the meaning of the claim.

To be integrated, the antenna must be formed from the material that forms the chassis and remains contiguous, in part, with the chassis. Specification, page 8, lines 18-20. *See, Solomon v.*

Kimberly Clark Corp., 55 U.S.P.Q. 2d 1279 (Fed. Cir. 2000) (when an applicant states the meaning of a claim term, the claim is to be examined with that meaning); *In re Zletz*, 13 U.S.P.Q. 2d 1320 (Fed. Cir. 1989). Crawford's antenna elements 230 and 238, cited by the Examiner are clearly attached to or mounted on the housing 202. Column 2, lines 6-12; Column 5, lines 1-6 and 20-43. Additionally, see e.g., claims 1, 9, 11, 19 and 21. Thus, the antenna elements 230 and 238 of Crawford are not integrated into the housing within the meaning of the claim. Because Crawford fails to teach every element of claim 9 it cannot anticipate the claim. *See e.g., PPG Inc. v. Guardian Indus. Corp.,* 37 U.S.P.Q. 2d 1618, 1624 (Fed. Cir. 1996) (the reference must disclose every element of the challenged claim and enable one skilled in the art to make the claimed subject matter); *Motorola, Inc. v. Interdigital Tech. Corp.*, 43 U.S.P.Q. 2d 1481, 1490 (Fed. Cir 1997) (a prior art reference must be sufficiently clear to prove the existence of each and every element in the reference). As such, it is only proper that the rejection of claims 9 and 12 are reversed.

E. Does Crawford Disclose Integrating an Antenna with a Chassis as Called for in Claim 14?

Claim 14 was rejected under 35 U.S.C. § 102 (e) as being anticipated by Crawford (U.S. Patent No. 6,456,242). Independent claim 14 calls for integrating an antenna with a chassis. Integrating the antenna with the chassis requires forming the antenna from material that forms the chassis and remaining contiguous, in part, with the chassis. Specification, page 8, lines 18-20. *See, Solomon v. Kimberly Clark Corp.*, 55 U.S.P.Q. 2d 1279 (Fed. Cir. 2000)(when an

applicant states the meaning of a claim term, the claim is to be examined with that meaning); *In re Zletz*, 13 U.S.P.Q. 2d 1320 (Fed. Cir. 1989).

Crawford clearly does not disclose forming an antenna from material that forms the chassis and remaining contiguous, in part, with the chassis. For example, Crawford discloses mounting or attaching antenna elements 230 and 238 on a housing. Column 2, lines 6-12; Column 5, lines 1-6 and 20-43. Additionally, see e.g., claims 1, 9, 11, 19 and 21. If mounted on or attached to the housing, the elements 230 and 238 would not "remain contiguous" with the housing. That is, Crawford fails to disclose that the antenna elements 230 and 238 are released from the chassis. As such, the elements 230 and 238 cannot remain contiguous with the housing.

Because Crawford does not disclose every element of claim 14 and/or does not do so sufficiently clearly to prove the existence of integrating an antenna with the chassis, the rejection of claim 14 should be reversed. *Motorola, Inc. v. Interdigital Tech. Corp.*, 43 U.S.P.Q. 2d 1481, 1490 (Fed. Cir 1997) (a prior art reference must be sufficiently clear to prove the existence of each and every element in the reference).

IX. CONCLUSION

The Applicant requests that each of the final rejections be reversed and that the claims subject to this appeal are allowed to issue.

Respectfully submitted,

Date: July 18, 2003

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APPENDIX OF CLAIMS

1. A wireless computer network comprising:

a wireless network computer having a chassis;

an integrated chassis antenna that is coupled to the computer chassis;

a first wireless network device coupled to the integrated chassis antenna; and

a second wireless network device operative to communicate with the wireless network computer.

2. The wireless computer network as in claim 1 wherein the chassis includes a front surface and the first wireless network device is coupled to the integrated chassis antenna by a coaxial cable and a shield conductor of the coaxial cable is coupled to the front surface of the computer chassis.

3. The wireless computer network as in claim 2 wherein the integrated chassis antenna is formed with a base section and a vertical section, and the base section spaces the vertical section away from the computer chassis.

4. An apparatus comprising:

a chassis;

an antenna having a feed point; and

the antenna integrated into the chassis.

5. The apparatus as in claim 4 wherein:

the antenna has at least one edge and that edge remains in common with the chassis.

6. The apparatus as in claim 4 wherein:

the chassis includes a front edge; and

a coax cable shield conductor is coupled to the chassis at the front edge of the chassis.

7. The apparatus as in of claim 4 wherein:

the antenna includes a center conductor retention feature.

8. The apparatus as in claim 4 wherein:

the antenna remains in blank form.

9. An apparatus comprising:

a chassis and a wireless device;

an antenna integrated into the chassis and the antenna having a feed point; and

the wireless device coupled to the feed point of the antenna.

10. The apparatus as in claim 9 wherein:

the antenna has at least one edge and that edge remains in common with the chassis.

11. The apparatus as in claim 9 wherein:

the chassis includes a front edge and a coax cable shield conductor is coupled to the chassis at the front edge.

12. An apparatus as in claim 9 wherein:

the antenna includes a center conductor retention feature.

13. The apparatus as in claim 9 wherein the antenna includes a vertical section spaced away from the chassis.

14. A method comprising:

fabricating a chassis; and

integrating an antenna with the chassis.

15. The method of claim 14 wherein integrating the antenna includes forming the antenna from a part of the chassis and forming the antenna with an edge contiguous with the chassis.

16. The method of claim 14 wherein integrating the antenna includes forming a feed point with a center conductor retention feature.

17. The method of claim 14 wherein integrating the antenna includes forming the antenna with a base section and a vertical section, and forming the base section to space the vertical section away from the chassis.

18. The method of claim 14 wherein integrating the antenna includes perforating the contiguous edge forming a bend line.

19. The method of claim 18 wherein integrating the antenna includes perforating the antenna forming a second bend line.

20. The method of claim 14 wherein integrating the antenna includes forming a bend line by scoring the contiguous edge.

21. The method of claim 20 wherein integrating the antenna includes forming a second bend line by scoring the antenna.

22. The method of claim 15 wherein integrating the antenna includes blanking an antenna pattern from the chassis.

23. The method of claim 22 wherein integrating the antenna includes perforating the antenna forming a bend line.

24. The method of claim 22 wherein integrating the antenna includes scoring the antenna forming a bend line.